

REMARKS

Specification

The disclosure is objected to because of informalities. Specifically, informalities on pages 9, 10 13, 15, 16, 18, and 21 require correction. Accordingly, the informalities have been corrected as requested in the Office Action.

Claim Rejections

35 U.S.C. 112, Second Paragraph

Claims 1-29, 31, and 32

Claims 1-29, 31, and 32 were rejected under 35 U.S.C. 112, second paragraph, for "being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Specifically, claims 1, 17, and 25 are rejected because there is no antecedent basis for "the internal components". The Applicants respectfully disagree with this rejection, as the paragraph beginning on page 8, line 28 of the Specification indicates the internal components include the lock components housed within housing 12 as depicted in FIGs. 1 and 2. However, in order to expedite allowance of claims 1, 17, and 25, the language including "internal components" has been removed from the claims.

Moreover, claim 1 and additional claims have been rejected for lack of consistency with regard to the terms "solenoid" and "solenoid assembly". Accordingly, claims 1, 2, 3, 19, 26, and 29 have been amended to ensure the term "solenoid assembly" is consistently applied throughout the claims.

Claim 1 has also been rejected for being unclear by what is meant by "rod/tip" assembly. However, the Applicants respectfully disagree with this rejection. The rod/tip assembly is described in the Specification as originally filed, such as

on page 12 as "rod/tip assembly 68" and in FIGs. 1 and 2. A rod/tip assembly is further described on page 13 as "rod/tip assembly 106" and is depicted in FIGs. 4 and 5. As such, claim 1 is allowable under 35 U.S.C. 112, 2nd paragraph.

Additionally, claim 1 has been rejected for "fail secure" being used consecutively in lines 20 and 21, when one of the uses should read "fail safe". Accordingly, claim 1 has been amended.

Moreover, claims 1, 24, and 29 have been rejected because it is unclear "in what sense a spring rate can 'substantially match' a power curve" and "claiming of a different property of two difference elements as 'substantially matching' is indefinite". The Applicants respectfully disagree with this rejection. On page 20 of the Specification, the spring rate of a spring and the power curve of a solenoid are discussed. The spring rate of a spring stroke may closely match the power of a solenoid because a "conventional linear solenoid generates less force at the beginning of its stroke, with the force increasing through the stroke". As "the plunger 104 is drawn into the longitudinal bore 108, the force generated increases, which results in a non-linear solenoid 'power curve'". Like a solenoid and by way of example as demonstrated in FIG. 13, a "conical spring exerts much less pressure at the beginning of its compression stroke compared to the end of the stroke". As such, the way in which the power curve of a solenoid and the spring rate of an appropriate spring (e.g. a conical spring) can substantially match is clearly defined.

Claim 5 has been rejected due to lack of antecedent basis for "said plunger and rod/tip assemblies". Accordingly, claim 5 has been amended as suggested in the Office Action.

Claim 6 has been rejected for being unclear. Specifically, claim 6 is unclear for the language "further comprising a solenoid spring" when said language is included in claim 1 (which claim 6 depends from). Accordingly, claim 6 has been amended as suggested in the Office Action.

Claim 7 has been rejected for lack of antecedent basis for "said rod and tip assembly". Accordingly, claim 7 has been amended.

Claims 9 and 10 have been rejected because "a 'wherein' statement should be used". Since both claims 9 and 10 contain a "wherein" statement, it is believed that the Office Action meant to state that such a statement should not be used. Furthermore, claim 10 has been rejected for depending upon itself. Accordingly, claims 9 and 10 have been amended.

Claim 11 has been rejected due to inconsistency of the term "coupling member" first used in claim 8 and the term "coupling mechanism" used in claim 11. Accordingly, claim 11 has been amended as suggested in the Office Action.

Claim 14 has been rejected for being unclear with regard to how the latch bolt finger engages the latch bolt. The Applicants respectfully disagree with this rejection. In the paragraph beginning on page 9, line 22 of the Specification, the disclosure clarifies that the latch bolt finger 26 cooperates with the latch bolt retractor 28 that is integral with the latch bolt 16. The operation of the latch bolt and latch bolt finger are further depicted in FIGs. 1 and 2. Both the description and the accompanying figures show how the latch bolt finger engages the latch bolt.

Claim 17 has been rejected for being incomplete. Specifically, line 12 is incomplete after the word "into". Accordingly, claim 17 has been amended.

Claim 21 has been rejected due to informalities. Accordingly, claim 21 has been amended as suggested in the Office Action.

Claims 23 and 27 have been rejected due to lack of antecedent basis for "said cover plate". Accordingly, claims 23 and 27 have been amended.

Claim 24 has been rejected for lack of antecedent basis for "the power curve". Accordingly, claim 24 has been amended.

Claim 25 has been rejected for lack of consistency between "coupling member" and "coupling mechanism". Accordingly, claim 25 has been amended so the term "coupling member" is consistent throughout the claim.

Claim 28 has been rejected due to informalities. Specifically, "said" should follow "between". Claim 28 has been amended accordingly.

Claim 29 has been rejected for lack of antecedent basis for "said solenoid housing". Accordingly, claim 29 has been amended as suggested in the Office Action.

As argued above and/or as amended, claims 1-29, 31, and 32 are allowable under 35 U.S.C. 112, 2nd paragraph. As such, withdrawal of the rejections to claims 1-29, 31, and 32 is respectfully requested.

35 U.S.C. 103(a)

Claims 1-7, 14-15, 29, 31, and 32

Claims 1-7, 14-15, 29, 31, and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,856,221 to Zehrung ("Zehrung") in view of U.S. Patent No. 5,487,289 to Otto et al. ("Otto"). The Applicants respectfully disagree with this rejection. Claims 1 and 29 are independent

claims from which the remaining claims depend. Therefore, the following argument focuses on independent claims 1 and 29.

As indicated in the Office Action, Zehrung does not disclose or suggest all of the limitations of independent claims 1 and 29. In particular, Zehrung "fails to teach a coil surrounding the longitudinal bore and a conductor to apply an electrical signal, [and] a plunger movably arranged when the coil is energized. . . ." The Office Action indicates it would have been obvious to provide the coil and conductor of claim 29 with the solenoid of Zehrung since "such is well known solenoid structure to move a plunger". However, the Office Action fails to make a prima facie case of obviousness, and instead provides a mere conclusory statement indicating why the coil and conductor of claim 29 is obvious under Zehrung. According to *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007), the key to supporting any rejection under 35 U.S.C. 103(a) is to provide a clear articulation of the reason(s) why the claimed invention would have been obvious. "[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*

Moreover, the Office Action indicates Zehrung does not disclose a conical spring between a rod/tip assembly and a solenoid body. Otto is relied upon to provide these missing features.

However, Zehrung and Otto, taken alone or in combination, do not disclose all of the limitations of claims 1 and 29. Otto does not disclose or suggest a device with a solenoid spring having a spring rate that is substantially similar to the power curve of a solenoid assembly. While Otto does describe use of a

conical spring 57 between a solenoid 54 and annular disk 40, it discloses use of the spring to overcome engagement with a magnet. See, col. 4, lines 21-23. It does not disclose or suggest the use of a spring having a spring rate that substantially matches the characteristics of a solenoid assembly power curve. Moreover, Otto only discloses use of a *conical* spring with its solenoid assembly, thereby limiting the invention to that spring-type. This is different from the invention of claims 1 and 29, where many types of springs are appropriate "having many different longitudinal and cross-section shapes". See, paragraph beginning on page 15, line 30. Claims 1 and 29 are not limited to conical springs.

At least one advantage of the devices of claims 1 and 29 is that a solenoid spring with similar characteristics to a solenoid power curve permits a lower current solenoid to be used. A lower current solenoid "allows for the solenoid to operate at a cooler temperature and can extend the operational life of the solenoid". Page 21, lines 12-13. In this way, providing a solenoid spring having a spring rate that substantially matches the characteristics of a solenoid assembly power curve enhances the efficiency and longevity of the device. This is an advantage that is neither disclosed nor contemplated in Otto.

Furthermore, there would have been no motivation to incorporate the spring of claims 1 and 29 into Zehrung, as doing so would change the structure of the Zehrung device and unreasonably impart an improved feature of the present invention into Zehrung. Incorporating the advantages of a spring with a spring rate that substantially matches the characteristics of the solenoid's power curve also amounts to the impermissible use

of hindsight, which is an improper means of rejection under 35 U.S.C. 103(a).

Since Otto does not disclose the limitations of claims 1 and 29 missing from Zehrung, the combination of Otto and Zehrung cannot disclose the limitations found in claims 1 and 29. Additionally, it would not have been obvious to modify or combine the references as suggested in the Office Action, as it would change the structure of the devices and unreasonably impart advantageous features of the present invention into the references. Thus, independent claims 1 and 29 are allowable. Claims 2-7 and 14-15 depend from allowable claim 1 and claims 31 and 32 depend from allowable claim 29; as such they are also allowable. For at least the reasons stated herein, the withdrawal of the rejections to claims 1-7, 14-15, 29, 31, and 32 is respectfully requested.

Claims 1 and 8-12

Claims 1 and 8-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,429,556 to Kambic ("Kambic") in view of Otto. The Applicants respectfully disagree with this rejection. Claim 1 is an independent claim from which claims 8-12 depend. Therefore, the following argument focuses on independent claim 1.

As indicated in the Office Action, Kambic does not disclose or suggest all of the limitations of independent claim 1. In particular, Kambic does not disclose a conical spring between a rod/tip assembly and a solenoid body. Otto is relied upon to provide these missing features.

However, Kambic and Otto, taken alone or in combination, do not disclose all of the limitations of claim 1. As discussed above, Otto does not disclose or suggest a device with a

solenoid spring having a spring rate that is substantially similar to the power curve of a solenoid assembly. Otto does describe use of a conical spring, but discloses it to overcome engagement with a magnet. Moreover, Otto only discloses use of a conical spring with its solenoid assembly, thereby limiting the invention to that spring-type. This is different from the invention of claim 1, where many types of springs are appropriate. See, e.g., page 15. Claim 1 is not limited to a conical spring.

Furthermore, there would have been no motivation to incorporate the spring of claim 1 into Kambic, as doing so would unreasonably impart an improved feature of the present invention into Kambic. Incorporating the advantages of a spring with a spring rate that substantially matches the characteristics of the solenoid's power curve also amounts to the impermissible use of hindsight, which is an improper means of rejection under 35 U.S.C. 103(a).

Since Otto does not disclose the limitations of claim 1 missing from Kambic, the combination of Otto and Kamic cannot disclose the limitations found in claim 1. Additionally, it would not have been obvious to modify or combine the references as suggested in the Office Action, as it would unreasonably impart advantageous features of the present invention into the references. Thus, independent claim 1 is allowable. Claims 8-12 depend from allowable claim 1 and as such are also allowable. For at least the reasons stated herein, the withdrawal of the rejections to claims 1 and 8-12 is respectfully requested.

Claim 13

Claim 13 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kambic in view of Otto, and further in view of

U.S. Patent No. 6,539,755 to Bruwer et al. However, claim 13 depends from allowable claim 1. As such, claim 13 is also allowable. Thus, the withdrawal of the rejection to claim 13 is respectfully requested.

Claim 16

Claim 16 was rejected under 35 U.S.C. 103(a) as being unpatentable over Zehrung in view of Otto, and further in view of U.S. Patent No. 4,726,613 to Foshee ("Foshee"). However, claim 16 depends from allowable claim 1. As such, claim 16 is also allowable. Thus, the withdrawal of the rejection to claim 16 is respectfully requested.

Claims 17-24

Claims 17-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Zehrung in view of Foshee. Claim 17 is an independent claim from which claims 18-24 depend. Therefore, the following argument focuses on independent claim 17.

The Applicants respectfully disagree with this rejection. However, in order to expedite the allowance of these claims, claim 17 has been amended to better describe the solenoid assembly as also comprising a spring such that the spring has "a spring rate and said solenoid assembly [has] a power curve, said spring rate of said solenoid spring substantially matching the power curve of said solenoid assembly". Claim 24 has been amended to account for the changes to claim 17. Support for these amendments is found in the Specification as originally filed, such as on pages 20 and 21.

As indicated in the Office Action, Zehrung does not disclose or suggest all of the limitations of independent claim 17. In particular, Zehrung "fails to teach a coil surrounding

the longitudinal bore and a conductor to apply an electrical signal, [and] a plunger movably arranged when the coil is energized. . . ." The Office Action indicates it would have been obvious to provide the coil and conductor of claim 17 with the solenoid of Zehrung since "such is well known solenoid structure to move a plunger". However, as discussed in more detail above, the Office Action fails to make a required prima facie case of obviousness. Moreover, the Office Action indicates Zehrung does not disclose a latch bolt with a meltable retractor part. Foshee is relied upon to provide this missing feature.

However, Zehrung and Foshee, taken alone or in combination, do not disclose all of the limitations of claim 17. Foshee does not disclose or suggest a device with a solenoid, much less a solenoid spring having a spring rate that is substantially similar to the power curve of a solenoid assembly. While Foshee does describe use of a biasing spring 32 for use in a latch assembly (col. 3, lines 57-61), it does not disclose or suggest the use of a solenoid with a spring having a spring rate that substantially matches the characteristics of a solenoid assembly power curve. The advantages of such a solenoid spring are discussed above; such advantages are neither disclosed nor contemplated in Foshee.

Furthermore, there would have been no motivation to incorporate the spring of claim 17 or the biasing spring of Foshee into Zehrung, as doing so would change the structure of the Zehrung device. Incorporating the solenoid spring of claim 17 would unreasonably impart an improved feature of the present invention into Zehrung and amount to the impermissible use of hindsight.

Since Foshee does not disclose the limitations of claim 17 missing from Zehrung, the combination of Foshee and Zehrung

cannot disclose the limitations found in claim 17. Additionally, it would not have been obvious to modify or combine the references as suggested in the Office Action, as it would change the structure of the devices and unreasonably impart advantageous features of the present invention into the references. Thus, independent claim 17 is allowable. Claims 18-24 depend from allowable claim 17 and as such are also allowable. For at least the reasons stated herein, the withdrawal of the rejections to claims 17-24 is respectfully requested.

Claim 25

Claim 25 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kambic in view of Foshee. The Applicants respectfully disagree with this rejection. However, claim 25 has been amended similarly to claim 17 above to expedite its allowance. Support for this amendment is found in the Specification as originally filed, such as on pages 20 and 21.

As indicated in the Office Action, Kambic does not disclose or suggest all of the limitations of claim 25. In particular, Kambic does not disclose a latch bolt with a meltable retractor part. Foshee is relied upon to provide this missing feature.

However, Kambic and Foshee, taken alone or in combination, do not disclose all of the limitations of claim 25. As argued above, neither Kambic nor Foshee disclose or suggest a device with a solenoid spring having a spring rate that is substantially similar to the power curve of a solenoid assembly. Furthermore, there would have been no motivation to incorporate the spring of claim 25 into Kambic, as doing so would unreasonably impart an improved feature of the present invention into Kambic and amount to the impermissible use of hindsight.

Since Foshee does not disclose the limitations of claim 25 missing from Kambic, the combination of Foshee and Kambic cannot disclose the limitations found in claim 25. Additionally, it would not have been obvious to modify or combine the references as suggested in the Office Action. Thus, independent claim 25 is allowable and the withdrawal of the rejections to claims 25 is respectfully requested.

Claims 26 and 27

Claims 26 and 27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kambic in view of Foshee and further in view of Zehrung. However, claims 26 and 27 depend from allowable claim 25; as such they are also allowable. Thus, the withdrawal of the rejection to claims 26 and 27 is respectfully requested.

Claim 28


Claim 28 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kambic in view of Foshee and Zehrung, and further in view of Otto. However, claim 28 depends from allowable claim 25; as such it is also allowable. Thus, the withdrawal of the rejection to claim 28 is respectfully requested.

CONCLUSION

Claims 1-29, 31, and 32 herein are allowable, and a timely Notice of Allowance is respectfully requested.

Respectfully submitted,

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Jaye G. Heybl
Attorney for Applicants
Registration No. 42,661

KOPPEL, PATRICK, HEYBL & DAWSON
2815 Townsgate Rd., Suite #215
Westlake Village, CA 91361
(805) 373-0060